Foreword

Reducing greenhouse gas emissions from urban transport is fundamental to deliver on the Paris Agreement and the Sustainable Development Goals relating to climate change and air quality. Decarbonising urban mobility must be placed at the core of climate change mitigation efforts, as a considerable share of total greenhouse gas emissions originate from the use of private vehicles and other carbon-intensive modes of transport in cities. We are at a critical juncture, as urban populations continue to grow and remain largely dependent on polluting private vehicles.

Given the urgency of the call to action on climate change, a series of important questions seek clear answers. To what extent will technological progress enable reductions in emissions from urban transport? Which land use and transport policies are effective in further reducing emissions? How should governments align these urban policies with relevant national policies, such as fuel taxes? These questions are pressing, as we enter a crucial period that will determine the extent of our transition to a low-carbon economy.

Decarbonising Urban Mobility with Land Use and Transport Instruments: The Case of Auckland supports policy makers in the pursuit of zero carbon urban transport. It is the first OECD report that uses state-of-the-art spatial modelling techniques, which were developed in-house, to evaluate the various impacts of public policies at the urban level. The report projects transport-related greenhouse gas emissions in the city of Auckland, as well as housing prices, public revenue and overall well-being, between 2019 and 2050.

Efforts to decarbonise urban mobility should leverage both transport and land use policies, as transport systems shape urban development and land use patterns have important implications for the environmental performance of urban transport systems. Thus, the development of the appropriate policy mix requires in-depth knowledge of the outcomes of these policies and the interactions between them. The analysis in this report indicates that the transition to zero carbon urban transport will not occur by 2050 without significant policy interventions. In the absence of major policy changes, per capita greenhouse gas emissions will fall but total greenhouse gas emissions from urban road transport will continue increasing, along with urban population and *per capita* income.

The case of Auckland shows that the use of transport policies that promote public transport and electric vehicles, combined with land use policies that foster a more compact urban form, can substantially reduce *per capita* greenhouse gas emissions. Notably, the study finds that increasing the cost of car use, while subsidising public transport fares and electric vehicle purchases, yields positive and significant welfare gains.

Land use policies also play an important role in curbing transport-related greenhouse gas emissions in urban areas characterised by low-density development. The report explores how urban densification can shorten trip distances and lower car dependency, thereby reducing emissions and increasing housing affordability.

While this report focuses on the case of Auckland, the lessons drawn hold wider significance. In particular, the findings are relevant for numerous urban areas in OECD countries that share certain key characteristics with Auckland. Such features include low population density, fragmented public transport networks, a high level of car dependency and high rates of private vehicle ownership. This report helps decision makers understand the implications of policy inaction, as well as anticipate the potential impacts of

environmental policies with regard to environmental effectiveness, economic efficiency and social cohesion. More broadly, the conclusions drawn from this study underline the benefit of designing policies in a holistic manner, to leverage their synergies and maximise their effectiveness over multiple domains. The OECD stands ready to assist governments in designing and delivering environmentally effective and economically efficient urban policies that will lead to a better quality of life in cities.

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Tobias Udsholt	Drafting, data collection and processing, statistical analysis, GIS data analysis and visualisation and communication with stakeholders.
Walid Oueslati	Project co-ordination and supervision, conceptual design of MOLES, drafting, data collection and communication with stakeholders.

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